# Index to Volume 29

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## How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, covering, respectively, Volumes 1–10 and Volumes 11–20, and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 29 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under thirteen section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books, Bibliographies, and Surveys; 4, Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12, Mechanical Vibration and Shock; and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into eight parts entitled Papers, Letters to the Editor, Abstracts, Subtitles, Patents, Book Reviews, News, and Errata. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under this heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents. New classifications are added from time to time. The year in which classifications are added appears in parentheses after the subject classes.

The reader or his librarian should go over the list of errata classified under 0.1, and either make the indicated corrections in the original papers or enter a note beside the title of the original paper—"See Erratum, Vol. XX, p. XXX."

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the Subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 29 these references will be found on pages 158, 399, 658, 867, 1041, and 1379.

## Classification of Subjects

**0. General, Unclassified**

- 0.1 Errata
- 0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society. (Started 1955.)
- 0.3 Nonacoustical Theories. (Started 1955.)
- 0.4 Nonacoustic Devices. (Started 1955.)

**1. Acoustical Society of America**

- 1.1 General, Unclassified
- 1.2 Constitution and Bylaws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists
- 1.7 Committee Activities. (Started 1956.)

**2. Architectural Acoustics**

- 2.1 General, Unclassified
- 2.2 Auditorium Design. (See also 7.6.)
- 2.3 Studies of Existing Auditoria
- 2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)
- 2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)
- 2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports. (See also 5.21 and 12.3i.)
- 2.12 Damping of Panels

**3. Books, Bibliographies, and Surveys**

- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents
- 3.4 Surveys, Historical and Philosophical Literature. (Started 1954.)

**4. The Ear and Hearing**

- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization
- 4.4 Deafness. (See also 5.5.)
- 4.4.5 Auditory Fatigue. (Started 1955.)

4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)
4.6 Loudness, Threshold Determinations
4.7 Masking. (See also 5.5.)
4.8 Phase Effects. (See also 4.3.)
4.9 Pitch
4.10 Subjective Tones
4.11 Theories of Hearing
4.12 Timbre
4.13 Ear Acoustical Impedance
4.14 Ear Protectors, Ear Plugs. (Started 1956.)

**5. Applied Acoustics, Instruments and Apparatus. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3Z, 13.11, 13.11n, and 13.11t.)**

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic Impedance Measurement. (See also 11.4 and 12.3Z.)
5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. (See also 5.15 and 12.3f.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.5.1 Broadcasting
5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)
5.18 Transducing Principles, Structures and Materials. (See also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t.)
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 2.11, 5.9, etc.) (Changed in 1957 to 12., 12.3, 12.3i, 12.3p, and 12.3v.)

**6. Musical Instruments and Music**

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas

**7. Noise**

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators. (See also 13.9.)
7.9 Noise of Animals. (Started 1956.)
7.10 Aerodynamic Noise. (Started 1957.)

**8. Standards**

8.1 General, Unclassified

**9. Speech and Singing**

9.1 General, Unclassified
9.2 Anatomy and Physiology of the Speech Organs
9.3 Articulation Testing. Intelligibility. Defective Speech
9.4 Frequency of Occurrence of Speech Sounds
9.5 Frequency Analyses of Speech Sounds
9.6 Instruments Relating to Speech and Singing
9.7 Speech Pitch
9.8 Speech Power, Singing Voice Power
9.9 Vibrato
9.10 Phonetics

**10. Ultrasonics (Supersonics)**

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

**11. Waves and Vibrations. (See also 13.)**

11.1 General, Unclassified
11.1.5 Analogies. (In previous volumes see 11.7.) (Started 1954.)
11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)
11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)
11.4 Radiation from Vibrating Objects. Acoustic Impedance. (See also 5.3, 12.3Z, and 13.7.)
11.5 Sounds of Finite Amplitude. Distortion. (See also 12.3 and 13.10.)
11.6 Sound in Tubes
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
11.7 Theory of Waves. (See also 5.4, 11.1.5, and 12.7.)

11.8 Biological Effects of Sound. (See also 10.9 and 12.9.)
11.9 Physical Effects of Sound. (See also 10.7, 10.8, 11.2.1, and 12.10.) (Started 1957.)

**12. Mechanical Vibration and Shock. (See also 5. and 11.) (Started 1957.)**

12.1 General, Unclassified
12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)
12.3f Mechanical Filters. (See also 5.4.)
12.3i Vibration Isolators, Attenuators and Dampers. (See also 2.11 and 5.21.)
12.3p Vibration Pickups and Indicators, Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)
12.3v Vibration Generators. Shake Tables. (See also 5.21.)
12.3Z Mechanical Impedance Measurement. (See also 5.3 and 11.4.)
12.5 Shock. (See also 11.5 and 13.10.)
12.7 Vibration. Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)
12.9 Biological Effects of Vibration and Shock. (See also 10.9 and 11.8.)

**13. Underwater Sound**

13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance. (See also 5.3, 11.4, and 12.3Z.)
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation
13.9 Noise in Water. Ship Noise. Biological Noises
13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5 and 12.5.)
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

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Numerals in boldface type refer to volume numbers. (A) designates Abstract; (L) designates Letter to the Editor; (T) designates Title only; (P) designates Patent.

**Abramson, H. Norman.** Flexural waves in elastic beams of circular cross section. **29**: 42—1957
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**Ackerman, Eugene** (see Fitzgerald, Edwin R.). **29**: 61—1957
—— (see Holak, William). **29**: 909—1957
**Adams, C. E.** (see Schilb, T.). **29**: 145(L)—1957
**Adams, George C.** Patent 2,789,321. Acoustical ceiling construction. **29**: 1243—1957
**Adler, Robert.** Patent 2,753,527. Electromechanical pulse-storage lines. **29**: 409—1957
**Adolph, Friedrich** (see Giertz-Hedstrom, Stig). **29**: 408(P)—1957
**Albers, V. M.** On learning, a major factor influencing preferences for high-fidelity reproducing systems. **29**: 654(L)—1957
**Albiero, Ernest** (see Frigo, Lino). **29**: 1391(P)—1957
**Allen, Clayton H.** Finite amplitude distortion. **29**: 763(A)—1957
**Allen, Ernest B.** Patent 2,706,606. Vibration isolator. **29**: 167—1957
**Allison, Ralph E.** Filter networks. **29**: 771(T)—1957
—— Patent 2,768,236. Hearing test system. **29**: 537—1957
**Alsbrook, Bishop N., Jr., and Thomas H. Harkey.** Patent 2,786,098. Drive-in theater speakers severance warning system. **29**: 1050—1957
**Alton, Werner** (see Kahn, Siegfried). **29**: 1151(P)—1957
**Ambrosio, Biagio F.** Patent 2,780,795. Distance measurements by sonic means. **29**: 1050—1957
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**Anderson, R. E. and R. B. Watson.** Measurement of sound absorption coefficients with acoustic pulses. **29**: 178(A)—1957
**Anderson, Roy S.** (see Olney, Benjamin). **29**: 94—1957
**Anderson, Thomas M. and Byron E. Good.** Patent 2,744,435. Apparatus for mounting keys, pads and the like of musical instruments. **29**: 174—1957
**Anderson, V. C.** Arrays for the investigation of ambient noise in the ocean. **29**: 1264(A)—1957
**Andreatch, P., Jr., and R. N. Thurston.** Disk-loaded torsional wave delay line. I. Construction and test. **29**: 16—1957
**Andres, Lloyd J.** Patent 2,740,296. Phonograph needle comparator. **29**: 320—1957
—— Patent 2,771,295. Stylus and socket therefor. **29**: 878—1957
**Andrews, Dallas R.** Patent 2,751,274. Magnetic recording. **29**: 669—1957
**Anthony, Alfred A.** Patent 2,788,696. Xylophone enclosed in figure. **29**: 1054—1957
**Arenberg, David L. and Robert M. Ashby.** Patent 2,777,997. Ultrasonic delay lines. **29**: 1055—1957
**Argentieri, Peter A.** Patent 2,745,509. Noise reduction device. **29**: 423—1957
**Argyris, Thomas S.** (see Bell, Eugene). **29**: 239—1957
**Arnold, Eugene K.** (see Laviana, Donald W.). **29**: 678(P)—1957
**Arnold, Prescott Niles.** Necrology. **29**: 656—1957

**Arnold, William H. and Samuel H. Cottrell.** Patent 2,746,560. Water muffler. **29**: 761—1957
**Ashby, Robert M.** Patent 2,753,528. Ultrasonic delay lines. **29**: 423—1957
—— (see Arenberg, David L.). **29**: 1055(P)—1957
**Attwood, John G. and Clarence C. Smith.** Patent 2,741,198. Vibration damping means for sewing machines. **29**: 1247—1957
**Awatani, Jobu.** Note on acoustic radiation pressure. **29**: 392(L)—1957

**Babbitt, Milton.** Compositional techniques and electronic media. **29**: 770(A)—1957
**Bach, John A.** Patent 2,796,795. Stringed musical instrument. **29**: 1245—1957
**Bach, R., Jr.** (see Chang, S. H.). **29**: 1256(A)—1957
**Baer, John S.** Patent 2,751,438. Magnetic recording apparatus. **29**: 171, 670—1957
**Bailey, Austin.** Patent 2,777,251. Self-oscillating double tone whistle. **29**: 1049—1957
**Bailey, John H.** Patent 2,730,188. Baffle muffler silencer. **29**: 759—1957
—— Patent 2,784,797. Muffler. **29**: 1053—1957
**Bajolet, Gabriel.** Patent 2,754,713. Photoelectric musical device. **29**: 883—1957
**Baker, Buford M.** Patent 2,792,562. Horizontal seismometer. **29**: 1389—1957
**Baker, James M.** Patent 2,767,515. Trundle hoop with sounding means. **29**: 1049—1957
**Baldwin, Lionel V.** (see Mickelsen, William R.). **29**: 46—1957
**Baltosser, Robert W.** Patent 2,748,370. Seismometer. **29**: 319—1957
**Banta, Edwin D.** Patent 2,764,741. Electromechanical delay means. **29**: 541—1957
**Barnes, J. M. and E. A. Hiedemann.** Errata: Determination of the elastic constants of optical glasses by an ultrasonic method. **29**: 865(L)—1957
**Barnett, N. E. and S. S. Kushner.** Preliminary investigation of some blanket damping treatment variables. **29**: 1251(A)—1957
**Barone, Robert J.** Patent 2,767,607. Electric and portable piano. **29**: 1156—1957
**Barraclough, T. W. and R. D. Collier.** Dynamic force measuring system for machinery vibration measurements. **29**: 1250(A)—1957
**Baruch, Jordan J.** Patent 2,759,554. Acoustic absorber. **29**: 406—1957
—— Patent 2,759,555. Acoustic method and system. **29**: 406—1957
—— Patent 2,759,556. Acoustic method and system. **29**: 406—1957
**Batchelder, Laurence.** Shock and vibration as a branch of acoustics. **29**: 181(A)—1957
**Bauer, Benjamin B.** Microphones. **29**: 771(T)—1957
—— Microphones for sound level meters. **29**: 1333—1957
—— Patent 2,752,428. Phonograph translating device. **29**: 322—1957
—— **and Lee Gunter, Jr.** Patent 2,744,165. Head construction for magnetic recorders and reproducers. **29**: 419—1957
**Bauman, Harold W.** (see Flata, Manuel L.). **29**: 880(P)—1957
—— (see Howell, Hugh A.). **29**: 1390(P)—1957
**Bayston, T. E. and S. J. Campanella.** Continuous analysis speech band-width compression system. **29**: 1255(A)—1957
**Beard, Richard B.** Patent 2,768,524. Ultrasonic absorption measuring apparatus. **29**: 677—1957
**Beck, W. N.** Ultrasonic recording of the bones in a human arm. **29**: 865(L)—1957
**Becker, Carl.** Application of nonlinear vibration isolators. **29**: 776(A)—1957
—— Development of acoustic attenuators for air-conditioning ducts. **29**: 1258(A)—1957
**Becker, Carl H.** Patent 2,783,677. Stereophonic sound system and method. **29**: 1051—1957
**Becker, James E.** Patent 2,787,251. Muffled vibrator. **29**: 1156—1957
**Beer, Palle-Finn.** Patent 2,790,032. Contact microphone. **29**: 1151—1957
**Belcher, P. M.** Use of a high-intensity siren in fatigue testing of structures subjected to acoustic forcing. **29**: 176(A)—1957
**Belevitch, Vitold.** "Langage des Machines et Langage Humain," reviewed by George A. Miller. **29**: 658—1957
**Bell, Eugene and Thomas S. Argyris.** Response of the skin to focused ultrasound. **29**: 239—1957
**Bellandi, Ferdinando L.** Patent 2,777,607. Sound-emitting hand-invertible dispensing container for fluent material. **29**: 1049—1957
**Bender, Leonard F.** (see Vaughen, Justine L.). **29**: 1262(A)—1957
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**Beranek, Leo L.** Criteria for noise in office spaces. **29**: 765(A)—1957
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—— (see Miller, Laymon N.). **29**: 781(A), 1169, 1251(A), 1252(A)—1957
**Bergmans, Jan and Engelbert Wiegman van Heuven.** Patent 2,745,623. Apparatus comprising a fastening device. **29**: 1247—1957
**Berman, A. and C. S. Clay.** Theory of time-averaged-product arrays. **29**: 805—1957
**Bernstein, S.** (see Thurlow, W. R.). **29**: 515—1957
**Betters, John R.** (see Grosh, Charles R.). **29**: 413(P)—1957
**Beyer, Robert T.** Double relaxation effects. **29**: 243—1957
—— Review of "Mechanical vibrations," by Bernard Morrill. **29**: 1240—1957
—— **and K. C. Jacob.** Question of ultrasonic absorption peaks in ethyl acetate. **29**: 1034(L)—1957
—— **and V. Narasimhan.** Note on finite amplitude waves in liquids. **29**: 532(L)—1957
—— (see Narasimhan, V.). **29**: 181(A)—1957
—— (see Proud, J. M.). **29**: 773(A)—1957
**Bhatia, A. B.** Sound and ultrasound absorption resulting from heat radiation. **29**: 823—1957
**Bhimasenachar, J. and G. Venkata Rao.** Elastic constants of Staurolite. **29**: 343—1957
—— **and S. V. Subrahmanyam.** Compressibilities of mineral acids. **29**: 899—1957
**Bickford, Lawrence R., Jr.** Patent 2,782,280. Magnetostrictive relay. **29**: 1052—1957
**Bierl, Richard.** Patent 2,733,628. Key control of attack and decay in electronic musical instrument. **29**: 674—1957
**Bierman, Raymond C.** (see Dale, Collin B.). **29**: 668(P)—1957
**Bies, David A. and O. B. Wilson, Jr.** Acoustic impedance of a Helmholtz resonator at very high amplitude. **29**: 711—1957
**Bilger, Robert C.** Statistical derivation of an importance function for speech at threshold. **29**: 780(A)—1957
—— (see Deatherage, Bruce H.). **29**: 512—1957
**Binstock, Leonard** (see Kendig, Paul M.). **29**: 185(A)—1957
**Biot, M. A.** Reflection on a rough surface from an acoustic point source. **29**: 1193—1957

—— **and I. Tolstoy.** Formulation of wave propagation in infinite media by normal coordinates with an application to diffraction. **29**: 381—1957
**Birdsall, Theodore G.** (see Green, David M.). **29**: 523—1957
—— (see McPherson, Robert R.). **29**: 393(L)—1957
**Bischkopf, Hermann** (see Golle, Horst). **29**: 170(P)—1957
**Bisharat, Maurice H.** Patent 2,746,336. Instrument support. **29**: 174—1957
**Bissonette, Alfred J.** Patent 2,756,332. Tone generator system. **29**: 422—1957
**Black, Raymond D.** Ear-insert microphone. **29**: 260—1957
**Blake, Francis G., Jr.** Patent 2,771,961. Method of initiating underwater seismic disturbances. **29**: 877—1957
**Bleazey, John C., John Preston, and Everett G. May.** Miniature loudspeakers for personal radio receivers. **29**: 1260(A)—1957
—— (see Olson, Harry F.). **29**: 1259(A)—1957
**Blitz, Daniel** (see Richmond, Martin R.). **29**: 1389(P)—1957
**Block, Herman H.** Patent 2,793,558. Musical game. **29**: 1244—1957
**Blonder, Isaac S.** (see Rines, Robert H.). **29**: 174(P)—1957
**Bluemel, C. S.** "The riddle of stuttering," reviewed by Bernard Jackson. **29**: 1379—1957
**Bobb, Lloyd J.** Patent 2,745,904. Magnetic recording machine. **29**: 669—1957
—— Patent 2,745,905. Magnetic head assembly. **29**: 669—1957
—— Patent 2,786,896. Magnetic recording and reproducing circuits. **29**: 882—1957
**Bochan, John** (see Shelton, Winston L.). **29**: 173(P)—1957
**Bodine, Albert G.** Patent 2,783,008. Acoustical boundary layer control for aerodynamic bodies. **29**: 1055—1957
—— Patent 2,796,702. Method and apparatus for sonic polishing and grinding. **29**: 1392—1957
—— Sonics in the oil industry. **29**: 771(T)—1957
**Boestad, Gustav Karl William** (see Lysholm, Alf). **29**: 676(P)—1957
**Bogert, B. P.** Response of an electrical model of the cochlear partition with different positions of excitation. **29**: 789—1957
**Boldman, Donald R.** Simple sound source in a 50- to 300-foot-per-second air stream. **29**: 532(L)—1957
**Bolinger, Dwight L. and Louis J. Gerstman.** Disjuncture as a cue to constructs. **29**: 778(A)—1957
**Bolle, Earl L.** Patent 2,796,796. Reed organ and stand. **29**: 1245—1957
**Bolzmann, Hans.** Patent 2,757,354. Echo locating systems using sonic or supersonic pulses. **29**: 424—1957
—— Patent 2,788,509. Echo sounding apparatus. **29**: 1158—1957
**Bömmel, H. E.** Experimental techniques in solid state and low-temperature acoustics. **29**: 182(A)—1957
—— (see Mason, W. P.). **29**: 1261(A)—1957
**Bonade, Daniel.** Patent 2,791,929. Ligatures for clarinets or the like. **29**: 1155—1957
**Bonnaffous, Maurice.** Patent 2,790,038. Telephone ear piece. **29**: 1052—1957
**Booth, Galt B.** Patent 2,798,972. Vibration pickup. **29**: 1392—1957
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**Borst, John M. and Franklin S. Cooper.** Speech research devices based on a channel vocoder. **29**: 777(A)—1957
**Bostwick, Lee G.** Patent 2,747,092. Vibrating reed oscillator of the contact type. **29**: 172—1957
**Bottini, Allerico.** Patent 2,792,449. Device for stereophonically recording and transmitting sound waves. **29**: 1153—1957
**Boucher, R. M. G.** (see Brun, E.). **29**: 573—1957
**Boucke, Heinz.** Patent 2,755,796. Electrostatic transducers. **29**: 972—1957
**Bouyoucos, John V.** Economics of power generation. **29**: 771(T)—1957
—— **and Frederick V. Hunt.** Patent 2,792,804. Acoustic-vibration generator and method. **29**: 1391—1957
**Bowman, R.** (see Thurlow, W. R.). **29**: 281—1957
**Bowman, Reginald M.** Patent 2,770,158. Bridge for stringed musical instruments. **29**: 539—1957
**Brackenridge, J. Bruce and Wesley L. Nyborg.** Acoustical characteristics of oscillating jet-edge systems in water. **29**: 459—1957
**Bradford, Rex C. and Henry R. Kelsof.** Patent 2,800,534. Electromagnetic transducer. **29**: 1390—1957
**Breckenridge, Franklin E.** (see Greenspan, Martin). **29**: 763(A)—1957
**Bredehoft, Harold A.** Patent 2,733,435. Sound output control for telephone ringers. **29**: 168—1957
**Brennan, Edmund F.** Patent 2,765,695. Vibrator for brass wind instruments. **29**: 1154—1957
**Brennan, J. N. and J. S. Nisbet.** Direct method of accelerometer calibration. **29**: 179(A)—1957
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# Analytic Subject Index to Volume 29

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### *0. General, Unclassified*

**0.1 Errata**

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**0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society. (Started 1955.)**

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Changes at Bolt Beranek and Newman Inc. **29**: 154—1957

Congress of Linguists. **29**: 396—1957

Development Fund, American Institute of Physics. **29**: 656—1957

Fulbright awards in Australia. **29**: 752—1957

International study conference on problems of deafness. **29**: 1147—1957

International Symposium on the Phonatory Function of the Larynx. **29**: 396—1957

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Meeting dates of SEG. **29**: 657—1957

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Need of the Patent Office for Patent Examiners. **29**: 968—1957

New building for American Institute of Physics. **29**: 315—1957

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Noise Abatement Award to New York City. **29**: 316—1957

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ABSTRACTS

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**0.3 Nonacoustical Theories. (Started 1955.)**

PAPERS

Theory of time-averaged-product arrays. A. Berman and C. S. Clay. **29**: 805—1957

LETTERS TO THE EDITOR

Optical method for analysis of fluid motion. Logan E. Hargrove, Jr., and George B. Thurston. **29**: 966—1957

ABSTRACTS

On structural fatigue under random loading. John W. Miles. **29**: 176—1957

Photographic method for analysis of fluid motion. Logan E. Hargrove, Jr., and George B. Thurston. **29**: 179—1957

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BOOK REVIEWS

A history of mechanics. René Dugas. (Reviewed by R. B. Lindsay.) **29**: 1378—1957

Basic physics. Alexander Efron. (Reviewed by John A. Dillon, Jr.) **29**: 1378—1957

Elements of partial differential equations. Ian N. Sneddon. **29**: 398(T)—1957

ERRATA

Application of two ultrasonic methods to the determination of the ratio $p/q$ of the photoelastic constants of optical glasses. H. F. Gates and E. A. Hiedemann. **29**: 865—1957

**0.4 Nonacoustic Devices. (Started 1955.)**

PAPERS

Elastic constants of Staurolite. J. Bhimasenachar and G. Venkata Rao. **29**: 343—1957

LETTERS TO THE EDITOR

Improved light valve for the photographic recording of vibrations. Gopala Menon Sreekantath. **29**: 1034—1957

### *1. Acoustical Society of America*

**1.1 General, Unclassified**

Acoustical Journal now publishing twelve issues per year. **29**: 151—1957

Acoustical Society Members invited to affiliate with IRE Professional Groups. **29**: 968—1957

Announcement of forthcoming election. **29**: 156—1957

Council actions. **29**: 1038—1957

Noise control in the Washington Chapter. **29**: 154—1957

Twelve issues per year. **29**: 313—1957

What sort of Journal do we want? An editorial. **29**: 1146—1957

**1.3 History**

A few firsts. **29**: 314—1957

**1.5 Meetings**

Author Index to Abstracts of Ann Arbor Meeting. **29**: 1265—1957

Author Index to Abstracts of 53rd Meeting of the Acoustical Society of America. **29**: 782—1957

Author Index to Abstracts of Los Angeles Meeting. **29**: 188—1957

Dates of future meetings of the Acoustical Society. **29**: 157, 316, 397, 535, 753, 865, 969, 1039, 1147, 1240—1957

Fifty-third meeting of the Society. **29**: 1036—1957

News of the Los Angeles Meeting. **29**: 313—1957

Noise control in the Washington Chapter. **29**: 154—1957

Program of the Fifty-Second Meeting of the Acoustical Society of America, Hotel Statler, Los Angeles, California, November 15, 16, 17, 1956. **29**: 176—1957

Program of the Fifty-Third Meeting of the Acoustical Society of America, Barbizon-Plaza Hotel, New York, New York, May 23, 24, and 25, 1957. **29**: 763—1957

Program of the Fifty-Fourth Meeting of the Acoustical Society of America, University of Michigan, Ann Arbor, Michigan, October 24, 25, and 26, 1957. **29**: 1248—1957
Second ICA Congress, ICA Issue 2. **29**: 1—1957
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Second ICA Congress, ICA Issue 4. **29**: 425—1957
Second ICA Congress, ICA Issue 5. **29**: 543—1957
Second ICA Congress, ICA Issue 6. **29**: 681—1957

**1.6 Members and Membership Lists**

Agnich and McEvilly receive prizes from SEG. **29**: 153—1957
Author Index to Abstracts of Ann Arbor Meeting. **29**: 1265—1957
Author Index to Abstracts of 53rd Meeting of the Acoustical Society of America. **29**: 782—1957
Author Index to Abstracts of Los Angeles Meeting. **29**: 188—1957
Benjamin B. Bauer appointed to head Audio and Acoustical Research for CBS Laboratories. **29**: 1239—1957
Bourne E. Eaton. Necrology. **29**: 1239—1957
Changes at Bolt Beranek and Newman Inc. **29**: 154—1957
Cyril M. Harris, new National Chairman of the IRE-PGUE. **29**: 1147—1957
Daniel B. Callaway appointed to new position. **29**: 1376—1957
Dr. Richard H. Bolt to be Principal Consultant on Biophysics for the year. **29**: 315—1957
Elliot A. Kearsley joins staff of National Bureau of Standards. **29**: 1376—1957
Ernest B. Yeager receives joint Biennial Award. **29**: 152—1957
Floyd A. Firestone resigns office of Editor-in-Chief. **29**: 1035—1957
Frank A. Morris appointed Director of Stromberg-Carlson Telecommunication Research Department. **29**: 1239—1957
George W. Stewart. Necrology. **29**: 314—1957
Gold Medal to Dr. Georg von Békésy. **29**: 968—1957
Hale J. Sabine and Mahlon Burkhard join Armour Research Foundation. **29**: 1239—1957
Harry F. Olson new National Chairman of the IRE-PGA. **29**: 865—1957
Honor for the Treasurer. **29**: 968—1957
Ira J. Hirsh, recipient of the Biennial Award (condensation of remarks by Hallowell Davis). **29**: 151—1957
Licklider and Kryter joint Bolt Beranek and Newman Inc. **29**: 1038—1957
National Science Foundation appoints new Assistant Director for the Division of Mathematical, Physical, and Engineering Sciences. **29**: 1038—1957
New associates and members. **29**: 156, 316, 397, 535, 657, 753, 865, 969, 1040, 1147, 1377—1957
New Fellows of the Acoustical Society of America. **29**: 1239—1957
1957 Gold Medal Award to Dr. Harvey Fletcher. **29**: 1036—1957
Prescott Niles Arnold. Necrology. **29**: 656—1957
Ralph F. Norris. Necrology. **29**: 153—1957
Robert B. Newman appointed to the Board of Governors of the Building Research Institute. **29**: 1377—1957
Sustaining members. **29**: (lists precede first page of text in each issue)—1957
William H. Martin awarded honorary degree. **29**: 1147—1957

**1.7 Committee Activities. (Started 1956.)**

Activities of Z24 Standards Committee. **29**: 154—1957
Technical committees of the Society and their chairmen. **29**: 155, 316, 397, 535, 657, 753, 1039, 1147, 1240, 1377—1957

## *2. Architectural Acoustics*

**2.1 General, Unclassified**

PAPERS

Acoustical field at normal modes in rooms. T. S. Korn and R. Van de Plas. **29**: 1267—1957
Design and performance of a new reverberation room at Armour Research Foundation, Chicago, Illinois. D. R. McAuliffe. **29**: 1270—1957

ABSTRACTS

Air-conditioning equipment noise levels in residences. E. E. Mikeska. **29**: 178—1957
Attenuation of sound in lined air ducts. A. J. King. **29**: 1259—1957
Criteria for noise in office spaces. Leo L. Beranek. **29**: 765—1957
Measurement of noise inside ducts. Ira Dyer. **29**: 1259—1957
Prediction of noise reduction and privacy in modern office structures. W. R. Farrell and B. G. Watters. **29**: 765—1957
Some experiments on sound propagation in damped air ducts with flow velocities up to 80 m/sec. Erwin Meyer, F. Mechel, and G. Kurtze. **29**: 1259—1957
Some recent advances in soundproof openings. H. V. Munchhausen. **29**: 765—1957
Some useful measurements in room acoustics. R. N. Lane. **29**: 178—1957

BOOK REVIEWS

Acoustics for the architect. Harold Burris-Meyer and Lewis Goodfriend. (Reviewed by Leo L. Beranek.) **29**: 1378—1957

**2.2 Auditorium Design. (See also 7.6.)**

PAPERS

Acoustical and organ design for church auditoriums. Albert R. Rienstra. **29**: 783—1957
Design and performance of a new reverberation room at Armour Research Foundation, Chicago, Illinois. D. R. McAuliffe. **29**: 1270—1957
Effect of the splayed walls of a room on the steady-state sound transmission characteristics. Tadamoto Nimura and Kimio Shibayama. **29**: 85—1957
Orthophonic surfaces in auditorium design. Cesare Codegone. **29**: 885—1957

ABSTRACTS

Acoustical design of two auditoria. T. D. Northwood and W. E. Rossman. **29**: 764—1957
Design and performance of a new reverberation room at Armour Research Foundation, Chicago, Illinois. D. R. McAuliffe. **29**: 764—1957
Prediction of noise levels in buildings. Lewis S. Goodfriend. **29**: 765—1957

BOOK REVIEWS

Room and building acoustics for architects. Willi Furrer. (Reviewed by Leo L. Beranek.) **29**: 754—1957

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Acoustical and organ design for church auditoriums. Albert R. Rienstra. **29**: 1374—1957

**2.3 Studies of Existing Auditoria**

PAPERS

Acoustics of the Rochester (New York) War Memorial Auditorium. Benjamin Olney and Roy S. Anderson. **29**: 94—1957

ABSTRACTS

Acoustical design of U.C.L.A. Music Building. Vern O. Knudsen and L. P. Delsasso. **29**: 177—1957
Acoustic measurements in school classrooms. R. N. Lane, E. E. Mikeska, and C. D. Anderson. **29**: 1258—1957
Field experiences and experiments with music practice rooms. Dariel Fitzroy. **29**: 178—1957

**2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)**

PAPER

On standard methods of measurement in architectural acoustics. Richard V. Waterhouse. **29**: 544—1957

LETTERS TO THE EDITOR

Sound absorption in air in rooms. Robert W. Young. **29**: 311—1957

ABSTRACTS

Effective absorption coefficient of rectangular areas of absorbent material. Eric D. Daniel. **29**: 178—1957

Example of the dependence of sound absorption on the area of sample. Robert W. Young. **29**: 1258—1957

Measurement of sound absorption coefficients with acoustic pulses. R. E. Anderson and R. B. Watson. **29**: 178—1957

Measuring techniques for surface noise, absorption coefficients, and transmission coefficients for materials exposed to random noise fields in small enclosures. Ernest Colton. **29**: 178—1957

Static and dynamic characteristics of isolation materials. F. Mintz. **29**: 765—1957

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Permeability tester. Karl Kammermeyer and David William Brubaker. **29**: 405—1957

**2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances**

PAPERS

Absorption of sound by patches of absorbent materials. Richard K. Cook. **29**: 324—1957

ABSTRACTS

Sound absorption coefficients of acoustical materials backed by large depth air spaces. W. A. Jack. **29**: 1258—1957

PATENTS

Acoustic absorber. Jordan J. Baruch. **29**: 406—1957

Acoustical ceiling construction. George C. Adams. **29**: 1243—1957

Acoustical tile drill. Joseph V. Emmons. **29**: 1243—1957

Acoustic method and system. Jordan J. Baruch. **29**: 406, 406—1957

Acoustic tiles. Mario Maccaferri. **29**: 405—1957

Doorless telephone booth. Willis L. Manning. **29**: 405—1957

Lighting and sound-absorbing fixture. Montgomery Ferar and Carl W. Sundberg. **29**: 406—1957

Lighting and sound-absorbing fixture. Charles H. Goddard and Max M. Thomsen. **29**: 406—1957

Method of making composite fireproof acoustical tile. Henry William Heine. **29**: 1243—1957

Process of forming fissured fiber acoustical tile and product thereof. Don A. Proudfoot, Donald K. Meissner, and Arthur T. Walton. **29**: 1243—1957

Sound absorbing and correcting material and method of making same. William Kulmann. **29**: 1244—1957

Sound absorbing structure. Jacob Meyer. **29**: 1243—1957

**2.6 Noise Reduction by Increased Room Absorption**

ABSTRACTS

Prediction of noise reduction and privacy in modern office structures. W. R. Farrell and B. G. Watters. **29**: 765—1957

**2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)**

PAPERS

Design and performance of a new reverberation room at Armour Research Foundation, Chicago, Illinois. D. R. McAuliffe. **29**: 1270—1957

ABSTRACTS

Sabine reverberation equation and sound power calculations. Robert W. Young. **29**: 765—1957

SUBTITLES

Reverberation time criteria. Benjamin Olney and Roy S. Anderson. **29**: 94—1957

**2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)**

PAPERS

Design and performance of a new reverberation room at Armour Research Foundation, Chicago, Illinois. D. R. McAuliffe. **29**: 1270—1957

Practical production and use of multitones. A. C. Raes. **29**: 329—1957

**2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)**

PAPERS

Effect of the splayed walls of a room on the steady-state sound transmission characteristics. Tadamoto Nimura and Kimio Shibayama. **29**: 85—1957

ABSTRACTS

Attenuation of sound in lined air ducts. A. J. King. **29**: 1259—1957

Development of acoustic attenuators for air-conditioning ducts. Carl Becker. **29**: 1258—1957

Measurement of noise inside ducts. Ira Dyer. **29**: 1259—1957

New airborne-sound transmission loss measuring facility at Riverbank. Ralph Huntley and R. L. Richards. **29**: 764—1957

On the steady-state transmission in rooms. M. R. Schroeder. **29**: 1258—1957

Some experiments on sound propagation in damped air ducts with flow velocities up to 80 m/sec. Erwin Meyer, F. Mechel, and G. Kurtze. **29**: 1259—1957

Some field studies of the transmission loss of lightweight aggregate concrete masonry blocks. B. G. Watters and W. R. Farrell. **29**: 765—1957

Some recent advances in soundproof openings. H. V. Munchhausen. **29**: 765—1957

**2.10 Sound Insulating Structures. Values of Transmission Coefficients**

ABSTRACTS

New airborne-sound transmission loss measuring facility at Riverbank. Ralph Huntley and R. L. Richards. **29**: 764—1957

Printing machinery isolation. Laymon N. Miller and Ira Dyer. **29**: 765—1957

Static and dynamic characteristics of isolation materials. F. Mintz. **29**: 765—1957

PATENTS

Soundproof building construction. Arthur M. Tofani, Jr. **29**: 407—1957

Wall-panel structure. Paul W. Jenkins and Albert A. Brown. **29**: 406—1957

**2.11 Vibration Insulating Supports. (See also 5.21 and 12.3i.)**

ABSTRACTS

Application of nonlinear vibration isolators. Carl Becker. **29**: 776—1957

Interaction of vibratory sources anti their foundations. R. Plunkett. **29**: 775—1957

Recent developments and future trends in vibration isolation. Russell T. Lowe and Charles E. Crede. **29**: 775—1957

PATENTS

Mounts for isolating vibration and absorbing shock. Stanley H. Fillion. **29**: 167—1957

Noise deadening rail joint. Ignazio Stefanizzi. **29**: 167—1957
Resilient mounting structure. Floyd R. Eck. **29**: 167—1957
Resilient supports. Philip Charles Hutton. **29**: 167—1957
Vibration isolator. Ernest B. Allen. **29**: 167—1957

**2.12 Damping of Panels**

PATENTS

Sound-deadening composition. Fred E. Kendall and Paul Golar. **29**: 407—1957

### *3. Books, Bibliographies, and Surveys*

**3.1 Books and Book Reviews**

BOOK REVIEWS

Acoustical engineering. Harry F. Olson. (Reviewed by Frank F. Romanow.) **29**: 754—1957
Acoustics. Joseph L. Hunter. (Reviewed by F. E. White.) **29**: 1240—1957
Acoustics for the architect. Harold Burris-Meyer and Lewis Goodfriend. (Reviewed by Leo L. Beranek.) **29**: 1378—1957
A history of mechanics. René Dugas. (Reviewed by R. B. Lindsay.) **29**: 1378—1957
American Institute of Physics handbook. Dwight E. Gray, Coordinating Editor. (Reviewed by Francis M. Wiener.) **29**: 1242—1957
An introduction to junction transistor theory. R. D. Middlebrook. **29**: 536(T)—1957
Basic physics. Alexander Efron. (Reviewed by John A. Dillon, Jr.) **29**: 1378—1957
Circuit theory and design. John L. Stewart. **28**: 158(T)—1957
Das Ohr als Nachrichtenempfänger. R. Feldtkeller and E. Zwicker. (Reviewed by J. Zwislocki.) **29**: 318—1957
Elements of partial differential equations. Ian N. Sneddon. **29**: 398(T)—1957
Etude Radio-Anatomique de l'Os Temporal (Radio-anatomical study of the temporal bone). M. Juster and H. Fischgold. (Reviewed by Walter A. Rosenblith.) **29**: 1241—1957
For Roman Jakobson: Essays on the occasion of his sixtieth birthday. Mouton & Company. (Reviewed by Walter A. Rosenblith.) **29**: 1241—1957
Frequency modulation. L. B. Argiumbau and R. D. Stuart. **29**: 398(T)—1957
Frequency modulation engineering. Christopher E. Tibbs and G. G. Johnstone. **29**: 158(T)—1957
Fundamentals of language. Roman Jakobson and Morris Halle. (Reviewed by Sze-Hou Chang.) **29**: 1149—1957
Fundamentals of sonar. J. W. Horton. (Reviewed by A. O. Williams, Jr.) **29**: 1148—1957
Gravesano. W. Meyer-Eppler, editor. (Reviewed by Kurt H. Haase.) **29**: 398—1957
High fidelity, a practical guide. Charles Fowler. (Reviewed by Harry F. Olson.) **29**: 1149—1957
Impulstechnik (Pulse technique). F. Winckel, editor. (Reviewed by Friedrich Vilbig.) **29**: 536—1957
Klangstruktur der Musik. Neue Erkenntnisse Musikelektronischer Forschung. F. Winckel, editor. (Reviewed by E. Thienhaus.) **29**: 398—1957
Kurze Geschichte der Vestibularis Forschung. Ernst Wodak. (Reviewed by Juergen Tonndorf.) **29**: 536—1957
Langage des Machines et Langage Humain. Vitold Belevitch. (Reviewed by George A. Miller.) **29**: 658—1957
Leitfaden der Praktischen Audiometrie. Bernhard Langenbeck. (Reviewed by Juergen Tonndorf.) **29**: 970—1957
Magnetostriction vibration and its application to ultrasonics. Yoshimitsu Kikuchi. **29**: 398(T)—1957
Mechanical vibrations. Bernard Morrill. (Reviewed by Robert T. Beyer.) **29**: 1240—1957
On human communication. Colin Cherry. (Reviewed by Lawrence G. Jones.) **29**: 970—1957
Pulse and digital circuits. Jacob Millman and Herbert Taub. **29**: 658(T)—1957
Radio electronics. Samuel Seely. **29**: 158(T)—1957
Reference data for radio engineers, fourth edition. H. P. Westman, Editor. **29**: 318—1957
Room and building acoustics for architects. Willi Furrer. (Reviewed by Leo L. Beranek.) **29**: 754—1957
Technical aspects of sound. E. G. Richardson, Editor. (Reviewed by R. B. Lindsay.) **29**: 866—1957
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Monitoring system for stereophonic sound channels. John F. Byrd. 29: 1153—1957
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Binaural sound reproduction. Emory G. Cook. **29**: 1051—1957
Device for stereophonically recording and transmitting sound waves. Allerico Bottini. **29**: 1153—1957
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Stereophonic sound system and method. Carl H. Becker. **29**: 1051—1957

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PATENTS
Antistatic sound-recording medium and method of making the same. Richard G. Rowe. **29**: 1244 (5 Patents)—1957
Apparatus for producing one groove binaural recording. Alan Freiberg. **29**: 321—1957
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Driving device for a gramophone turntable. Albert Jahncke. **29**: 414—1957
Dual needle phonograph cartridge. John F. Wood. **29**: 879—1957
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Electromechanical transducers. Stanley Kelly and John Watson Brownlee. **29**: 878, 878—1957
High fidelity phonograph stylus assembly. Roy Dally. **29**: 879—1957
Manufacture of stereophonic phonograph records. Daniel P. Doncaster. **29**: 1153—1957
Method and apparatus for manufacturing endless sound tapes. Karl Daniel. **29**: 1389—1957
Molded sound reproducer and method of making the same. Harold O. Fuchs. **29**: 321—1957
Phonograph needle comparator. Lloyd J. Andres. **29**: 320—1957
Phonograph pickup and the like. Melvern Orton, Henry J. Schultz, and Brooks Walker. **29**: 878—1957
Phonograph tablet tables. Joseph V. Caltagirone and August Nichols. **29**: 878—1957
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Stylus and socket therefor. Lloyd J. Andres. **29**: 878—1957
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**5.16f Film Recording (by photographic means)**

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Improved light valve for the photographic recording of vibrations. Gopala Menon Sreekantath. **29**: 1034—1957

PATENTS

Film synchronizing marker and system. Michael Rettinger. **29**: 879—1957

Optical scanning device for sound film apparatus. Heinz Kronenberger. **29**: 414—1957

Shutterless direct positive sound recording system. James L. Pettus and Edward P. Ancona. **29**: 879—1957

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**5.16m Magnetic Recording**

PAPERS

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PATENTS

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Apparatus for joining the ends of magnetic sound tape. Hugo Westerkamp. **29**: 668—1957

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Compensating device for a magnetic recording-reproducing head. Marvin Camras. **29**: 881—1957

Continuous running recorder for transients. Kenneth R. Geiser. **29**: 538—1957

Core structure for magnetic transducer head. Marvin Camras. **29**: 671—1957

Counter for tape recorder. Harry A. Lang. **29**: 171—1957

Device for guiding the tape in magnetic tape recorders. Anton Essel. **29**: 419—1957

Device for the erasure of recordings on magnetic sound carriers in the form of disks or endless tapes. Max G. Handschin and Walter Spieser. **29**: 672—1957

Device for the purpose of clamping a foil, inserted into the gap formed by both of the pole ends of a sound top for magnetic sound implements. Paul Gumbert. **29**: 170—1957

Driving mechanism for tape-shaped sound record carriers. Horst Golle and Hermann Bischkopf. **29**: 170—1957

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Head construction for magnetic recorders and reproducers. Benjamin B. Bauer and Lee Gunter, Jr. **29**: 419—1957

Head of equipment for magnetic recording and reproduction. Derk Kleis, Willem Klaas Westmijze, and Hermanus Stefanus Fuchs. **29**: 415—1957

Indexing means for signal recording and reproducing apparatus. Frederick G. Buhrendorf. **29**: 881—1957

Long playing magnetic tape recorder. Lincoln Thompson, Frank E. Runge, and William H. Lyon. **29**: 171—1957

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Magnetic recording apparatus. Donald Lee Curtis. **29**: 671—1957

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Magnetic recording head. Joseph W. Gratian. **29**: 415—1957

Magnetic recording head. John H. MacNeill. **29**: 881—1957

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Magnetic recording playback heads. John E. DeTurk, John H. MacNeill, and Norman Eliot Gibbs. **29**: 171, 670—1957

Magnetic recording systems. Howard M. Fleming, Jr. **29**: 880—1957

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Magnetic sound recording. Richard H. Ranger. **29**: 415—1957

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Magnetic sound recording and reproducing head. Willy Müller. **29**: 671—1957

Magnetic sound recording and reproducing machine. Chester A. Demby and Alvin A. Seldner, Jr. **29**: 417—1957

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Mounting device for a magnetic transducer head. Alfred P. Dank and Leonard S. Speth. **29**: 880—1957
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Multiple magnetic head construction. Michael Rettinger. **29**: 171—1957
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Roller means for applying magnetic material to sound recording tape. William C. Speed and James J. Dwyer. **29**: 418—1957
Sound recording and reproducing device. Giovanni Steinegger. **29**: 418—1957
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Tape guide for production of magnetic sound tape. John A. Hanley. **29**: 414—1957
Tape recorder and playback device. Walter C. Hironimus. **29**: 1390—1957
Tape-recording device. Emil Tiger. **29**: 880—1957

**5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)**

ABSTRACTS

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Component characteristics for an active ear defender. Willard F. Meeker. **29**: 1252—1957
Simple and inexpensive method for calibration of earphones. James F. Nickerson. **29**: 179—1957

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Earphones for use with dictating machines and the like. Harry B. Shaper. **29**: 758—1957
Noise excluding telephone receiver. Vladimir Gavreau. **29**: 172—1957
Portable intercommunication telephone. Raymond H. Niblock, Sr. **29**: 1154—1957
Sound translating apparatus. Martin L. Touger and Alfred H. Kettler. **29**: 538—1957
Telephone ear piece. Maurice Bonnaffous. **29**: 1052—1957
Telephone ear piece. Erich Hausdorf. **29**: 758—1957
Telephone headset holder. Bertie R. Hall. **29**: 420—1957
Telephone receiver. Harold C. Pye. **29**: 1154—1957
Telephonic unit with battery-powered auxiliaries. Isaac Heller. **29**: 1052—1957

**5.18 Transducing Principles, Structures and Materials. Thermophones. (See also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t.)**

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Sonic images. E. E. Suckling and W. R. Maclean. **29**: 146—1957
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SUBTITLES
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PATENTS
Acoustic-vibration generator and method. John V. Bouyoucos and Frederick V. Hunt. **29**: 1391—1957
Electrical strain wire transducer. Louis D. Statham. **29**: 420, 420, 420, 420—1957
Electric transducer. Ernest M. Kane. **29**: 420—1957
Electric transducer. Louis D. Statham. **29**: 322—1957
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Electromechanical transducer element. Paschal P. Zapponi. **29**: 1052—1957
Electromechanical transducing arrangement. Raymond T. Christensen. **29**: 758—1957
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Piezoelectric devices. Robert Heinrich Sturm. **29**: 758, 1052—1957
Pressure transducer apparatus. Philip J. Donald. **29**: 672—1957
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Transducer for producing sound at microwave frequencies. John Clarke Slater. **29**: 758—1957
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**5.19 Tuning Forks**

PATENTS
Mechanical vibrator. Austin N. Stanton. **29**: 672—1957
Vibrating reed oscillator of the contact type. Lee G. Bostwick. **29**: 172—1957

**5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 2.11, 5.9, etc. Changed in 1957 to 12., 12.3, 12.3i, 12.3p, and 12.3v.)**

PAPERS
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Apparatus for analyzing the dynamic deflection of tires. Robert S. Enabnit. **29**: 1052—1957
Apparatus for the dynamic balancing of rotors. Klaus Federn. **29**: 172—1957
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Oscillation damper. Charles Granet and Georges Roland. **29**: 173—1957
Velocity pickup devices. Vincent O'Gorman and Robert R. Perron. **29**: 173—1957
Vibration and shock mount. Lewis A. Paley. **29**: 173—1957
Vibration dampener for vehicle drive shaft housing. Robert W. Burton. **29**: 173—1957
Vibration damper. Stewart E. Gail. **29**: 173—1957
Vibration damping system for automatic washers and the like. Winston L. Shelton and John Bochan. **29**: 173—1957
Vibration generating system and beam resonator therefor. Karl Unholtz. **29**: 172—1957
Vibration measuring apparatus. Robert L. Sink. **29**: 173—1957

### *6. Musical Instruments and Music*

**6.1 General, Unclassified**

PAPERS
Absolute judgments of musical tonality. John F. Corso. **29**: 138—1957
Acoustic radiation from a stationary cylinder in a fluid stream (aeolian tones). B. Etkin, G. K. Korbacher, and R. T. Keefe. **29**: 30—1957
Equal beating chromatic scale. A. L. Leigh Silver. **29**: 476—1957
On the interpretation of certain sound spectra of musical instruments. Robert W. Young and H. K. Dunn. **29**: 1070—1957

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On learning, a major factor influencing preferences for high-fidelity reproducing systems. V. M. Albers. **29**: 654—1957

ABSTRACTS
Acoustical and related problems. **29**: 770(T)—1957
Compositional techniques and electronic media. Milton Babbitt. **29**: 770—1957
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Musical needs and the search for new resources. Howard Hanson. **29**: 770(T)—1957
Relationship of new sound materials to compositional techniques in music. Otto Luening. **29**: 770—1957

PATENTS
Audio-frequency meter. Merlin Petroff. **29**: 882—1957
Clutch for mechanical musical instrument. Samuel Hoffman. **29**: 1244—1957
Deformable cello horn. Jay P. Hester. **29**: 421—1957
Indicating musical instrument and tune card therefor. Anson Isaacson. **29**: 1154—1957
Means for teaching music. Carrie Loughrie. **29**: 673—1957
Musical game. Herman H. Block. **29**: 1244—1957
Musical gloves. James Bryce. **29**: 1052—1957

BOOK REVIEWS
Gravesano. W. Meyer-Eppler, editor. (Reviewed by Kurt H. Haase. **29**: 398—1957

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NEWS
Preferred frequencies of tuning forks. **29**: 1376—1957

**6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators**

PATENTS
Bells. Clair O. Musser. **29**: 1053—1957
Damping cords for musical instrument. Roy M. Brown. **29**: 883—1957
Electrical pickup for vibrating bodies. Jacob T. Kunz. **29**: 673—1957
Electric control of musical instruments. Elmer J. Hughes. **29**: 1154—1957
Musical box construction. Walter O. Gorr. **29**: 1053—1957
Musical boxes for which the tunes can be composed. Maurice Haricot. **29**: 1053—1957
Musical devices. Albert Weinstein. **29**: 673—1957
Musical instrument. Shoji Kato. **29**: 673—1957
Vibrator exciting action. Benjamin F. Miessner. **29**: 1154—1957
Xylophone construction. Harry Zimmerman. **29**: 1391—1957
Xylophone enclosed in figure. Alfred A. Anthony. **29**: 1054—1957

**6.3 Brass Wind Instruments (lip vibrated)**

PATENTS
Adjustable chin rest for wind instrument. Haig A. DeMire. **29**: 421—1957
Adjustable mouthpieces for brass wind instruments. Walter J. Sarad. **29**: 421—1957
Musical instruments mouthpiece measuring gauge. Peter E. Sekora. **29**: 1155—1957
Tone adjusting means for brass wind instruments. Siegfried Ritterback. **29**: 673—1957
Valve brass musical instrument. Mark H. Hindsley. **29**: 673—1957
Vibrator for brass wind instruments. Edmund F. Brennan. **29**: 1154—1957

**6.4 Drums and Other Membranophonic Instruments**

PAPERS
Modes of vibration of the Indian drum dugga or left-hand thabala. B. S. Ramakrishna. **29**: 234—1957

PATENTS
Counterhoop. Henry H. Slingerland, Jr. **29**: 1054—1957

**6.5 Pipe Organs**

PAPERS
Acoustical and organ design for church auditoriums. Albert R. Rienstra. **29**: 783—1957
Acoustical design of modern German organs. W. Lottermoser. **29**: 682—1957

PATENTS
Organ stop mechanism. William B. Sihpol. **29**: 538—1957
Pipe organ improved Pitman windchests. Roy R. Perry. **29**: 673—1957
Pipe organ system. John Hays Hammond, Jr. **29**: 1155—1957

ERRATA
Acoustical and organ design for church auditoriums. Albert R. Rienstra. **29**: 1374—1957

**6.6 Pianos and Other Keyboard Stringed Instruments**

PAPERS
Equal beating chromatic scale. A. L. Leigh Silver. **29**: 476—1957

PATENTS
Action frame for a piano. Alfred Edward Knight. **29**: 1155—1957
Chord playing attachment. Carl W. Hayes. **29**: 1391—1957
Damper for musical instruments. Joseph F. Dvorak. **29**: 1155—1957
Means for teaching piano playing. Alfred T. Schmidt. **29**: 674—1957
Piano. Delbert G. Cline. **29**: 538—1957
Piano action. Paul F. Murdock. **29**: 539—1957
Piano string. Robert E. Johnson. **29**: 674—1957
Piano tuning wrenches. Stanley Leonard Leftly. **29**: 883—1957
Power assisted action mechanisms for keyboard operated instruments. Robert L. McShan and Clarence H. McShan. **29**: 673—1957
Resiliently mounted sounding board. Knud Caspersen. **29**: 421—1957
Self-adjusting piano action damper mechanism. Joseph J. Comparetti. **29**: 883—1957
Silencer for use in practicing on an upright piano. Norman W. Welsh. **29**: 539—1957
Toy piano. Theodore R. Duncan. **29**: 421—1957
Tune card and instrument using same. Anson Isaacson. **29**: 674—1957

**6.7 Violin Family. Stringed Instruments Except Keyboard Type**

PAPERS
Regarding the sound quality of violins and a scientific basis for violin construction. H. Meinel. **29**: 817—1957

PATENTS
Adjustable base for stringed instrument bridge. Sebastino Melita. **29**: 1053—1957
Adjustable bridge for stringed instruments. Paul Stipetic. **29**: 1244—1957
Automatic auxiliary tuning device. Ronald E. Dearth. **29**: 1053—1957
Banjo tuning device. George Jenkins, Jr. **29**: 674—1957
Bridge for stringed musical instruments. Reginald M. Bowman. **29**: 539—1957
Chord-changing device. Johannes H. Smit. **29**: 174—1957
Chord playing attachment for stringed musical instruments. Rulon W. Brimhall. **29**: 1054—1957
Damping attachment for string instruments. Ernö Meir Goldberger and Jehudi Menuhin. **29**: 539—1957
Guitar pick attachment for the forefinger. Michael S. Di Preta. **29**: 883—1957
Instrument support. Maurice H. Bisharat. **29**: 174—1957
Music string. Otto Infeld. **29**: 421—1957
Neck junction for stringed musical instruments. Mario Maccaferri. **29**: 1054—1957
Pitch changing attachment for stringed musical instruments. Robert C. White and Ulyan A. Martin. **29**: 759—1957
Resonance device for stringed musical instrument. Hermann Gutsche. **29**: 1054—1957
Stringed musical instrument. John A. Bach. **29**: 1245—1957
Stringed musical instrument. George F. Gregg and William V. Caldwell. **29**: 1245—1957
Stringed musical instrument. John W. McBride. **29**: 174—1957
Violin bow frog. Albert F. Gardner. **29**: 1053—1957
Wrist support during violin playing. Kenneth G. Kuchler and Howard G. Hutchinson. **29**: 539—1957

**6.8 Wood Winds**

PATENTS
Apparatus for mounting keys, pads and the like of musical instruments. Thomas M. Anderson and Byron E. Good. **29**: 174—1957
Clarinet and like wind instrument. Charles F. Lehman, Jr., and Daniel A. McAninch. **29**: 1155—1957

Clarinet key pad. Vito Pascucci. 29: 422—1957
Clarinets. Oscar E. Christensen. 29: 1155—1957
Key mechanism for musical instruments. Devoe C. De Ford. 29: 1054—1957
Ligatures for clarinets or the like. Daniel Bonade. 29: 1155—1957
Means for softening musical instrument reeds. Albert G. Yost. 29: 759—1957
Slide-type musical instrument. Louis A. Ruben. 29: 1054—1957

**6.9 Electrical Musical Instruments**

ABSTRACTS

Compositional techniques and electronic media. Milton Babbitt. 29: 770—1957
Electronic music maker. Earl L. Kent. 29: 768—1957
Sound materials in the experimental media of musique concrete, tape music, and electronic music. Vladimir A. Ussachevsky. 29: 768—1957

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Acoustic apparatus. Donald J. Leslie. 29: 674—1957
Combined musical instrument. James A. Koehl. 29: 1155—1957
Construction of photoelectric organs. Merton D. Corwin. 29: 675—1957
Damping means for "electronic" carillons. Willard F. Meeker and Frank H. Slaymaker. 29: 539—1957
Electrical musical instruments. Serge L. Krauss and Charles J. Tennes. 29: 883—1957
Electrical pickup for musical instruments. John W. McBride. 29: 422—1957
Electrical tone source for musical instruments. Serge L. Krauss and Charles J. Tennes. 29: 540—1957
Electric and portable piano. Robert J. Barone. 29: 1156—1957
Electronic musical instrument. Alfred O. Williams. 29: 539—1957
Electronic organ with tremolo. Russell W. Chick. 29: 1156—1957
Hawaiian guitar volume control arm. John Penewell. 29: 174—1957
Key control of attack and decay in electronic musical instrument. Richard Bierl. 29: 674—1957
Method and apparatus for producing sounds. Osmond Kendall. 29: 883—1957
Musical instrument employing tape recording. Joseph W. Gratian. 29: 675—1957
Musical instruments with capacitative pickup. Jacob T. Kunz. 29: 1156—1957
Photoelectric musical device. Gabriel Bajolet. 29: 883—1957
Photoelectric musical instrument. Watson D. Harbaugh. 29: 1156—1957
Reverberation devices. Armand F. Knoblaugh. 29: 884—1957
Rigid vibrator musical instrument. Jacob T. Kunz. 29: 1156—1957
Tone control for stringed instruments. Clarence L. Fender. 29: 884—1957
Tone generator system. Alfred J. Bissonette. 29: 422—1957
Tone wheel vibrato means. Richard E. Williams. 29: 675—1957
Vibratory reed. Benjamin F. Miessner. 29: 540—1957

**6.10 Reed Organs. Accordions, Harmonicas**

PATENTS

Accordion. Aldo Logli. 29: 1245—1957
Accordion bass chord converter. Alberto Picchietti. 29: 1245—1957
Accordion pickup assembly. Lino Frigo and Ernest Albiero. 29: 1391—1957
Accordions with visible shifts. Julio Giulietti. 29: 423—1957
Arrangement in concertina. Folke Bernhard Fridström. 29: 422—1957
Assembly for vibratory reeds. Traugott Link. 29: 675—1957
Key mounting for accordions. Traugott Link. 29: 540—1957
Microphone arrangement for accordions. Donald J. Russo. 29: 1055—1957
Musical instrument. J. Edward Legler. 29: 422—1957
One-piece pneumatic sound maker with vibrating reed. George Wintriss. 29: 1053—1957
Pipe harmonica. Theodor Robert Folsom. 29: 422—1957
Reed for accordions or the like. Alexander E. Magalik and Gabriel J. Jacomini. 29: 1055—1957
Reed organ and stand. Earl L. Bolle. 29: 1245—1957
Row indicator for accordions. Louis A. Ruben. 29: 422—1957

## *7. Noise*

**7.1 General, Unclassified**

PAPERS

Acoustic radiation from a stationary cylinder in a fluid stream (aeolian tones). B. Etkin, G. K. Korbacher, and R. T. Keefe. 29: 30—1957
Aerodynamic mixing in a high-intensity standing-wave sound field. William R. Mickelsen and Lionel V. Baldwin. 29: 46—1957
Analysis of a multiple receiver correlation system. Melvin J. Jacobson. 29: 1342—1957
Effects of ambient noise on speaker intelligibility for words and phrases. John J. Dreher and John J. O'Neill. 29: 1320—1957
Noise transmission from boundary layer pressure fluctuations. Robert H. Kraichnan. 29: 65—1957
Performance on a simple vigilance task in noise and quiet. Harry J. Jerison. 29: 1163—1957
Reflection, transmission, and amplification of sound by a moving medium. Herbert S. Ribner. 29: 435—1957
Some experiments related to the noise from boundary layers. Harvey H. Hubbard. 29: 331—1957
Speech communications at high noise levels: the roles of a noise-operated automatic gain control system and hearing protection. Irwin Pollack. 29: 1324—1957

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Criterion for noise control. Karl D. Kryter. 29: 311—1957

ABSTRACTS

Aerodynamic noise produced by a freely suspended rotating cylinder. W. L. Nelson, A. B. Grundy, Jr., and A. Trachtenberg. 29: 763—1957
Changes of jet noise by mixing and an upper limit on jet noise production. Peter J. Westervelt, Ira Dyer, and Peter A. Franken. 29: 778—1957
Effects of secondary flow on screech noise produced by choked jets. R. Lee and E. B. Smith. 29: 779—1957
Instrumentation for the measurement of rocket engine noise. George W. Kamperman. 29: 779—1957
Intracardiac acoustics. John D. Wallace, James R. Brown, Jr., David H. Lewis, George W. Deitz, and Ali Ertugrul. 29: 1260—1957
Jet exhaust muffling with screens. E. J. Kirchman, E. H. Miller, and A. L. Owen, III. 29: 779—1957
Near field studies of jet noise. Peter A. Franken and Ira Dyer. 29: 779—1957
Noise measurement of subsonic concentric jets. R. Lee and E. B. Smith. 29: 779—1957
Noise shield for microphones used in noisy locations. Mones E. Hawley. 29: 767—1957

Nonlinear response of aircraft panels to acoustic noise. E. J. Kirchman and J. E. Greenspon. **29**: 176—1957
On structural fatigue under random loading. John W. Miles. **29**: 176—1957
Some comparisons of the response of simple panels to random and discrete noise. Harvey H. Hubbard and Robert W. Hess. **29**: 176—1957
Some experiments in unsteady aerodynamics leading to the development of an acoustic drag coefficient. E. S. Rubin and E. M. Kerwin, Jr. **29**: 763—1957
Sound power measurement in nonstandard environments. Charles H. Smith. **29**: 178—1957
Use of a high-intensity siren in fatigue testing of structures subjected to acoustic forcing. P. M. Belcher. **29**: 176—1957

**7.2 Annoyance**

LETTERS TO THE EDITOR
Criterion for noise control. Karl D. Kryter. **29**: 311—1957

ABSTRACTS
Procedures for estimating noise exposure and resulting community reaction from Air Base operations. A. C. Pietrasanta and K. N. Stevens. **29**: 779—1957

**7.4 City Noise**

PAPERS
Measurements of traffic noise in West Germany. F. J. Meister. **29**: 81—1957

ABSTRACTS
Preliminary investigation of vehicular noise associated with superhighways. W. E. Clark, Virginia A. Clark, and W. J. Galloway. **29**: 779—1957

**7.6 Noise in Buildings. (See also 2.2.)**

ABSTRACTS
Air-conditioning equipment noise levels in residences. E. E. Mikeska. **29**: 178—1957
Criteria for noise in office spaces. Leo L. Beranek. **29**: 765—1957
Prediction of noise levels in buildings. Lewis S. Goodfriend. **29**: 765—1957

**7.7 Machinery Noise. Mufflers. Noise Silencers.**

PAPERS
Comparison of the take-off noise characteristics of the Caravelle jet airliner and of conventional propeller-driven airliners. Laymon N. Miller and Leo L. Beranek. **29**: 1169—1957
Nonlinear response of aircraft panels in acoustic noise. E. J. Kirchman and J. E. Greenspon. **29**: 854—1957

LETTERS TO THE EDITOR
Simple sound source in a 50- to 300-foot-per-second air stream. Donald R. Boldman. **29**: 532—1957

ABSTRACTS
Acoustical plenum chambers. R. J. Wells. **29**: 186—1957
Comparison of the take-off noise characteristics of the Caravelle jet airliner and of conventional propeller-driven airliners. Laymon N. Miller and Leo L. Beranek. **29**: 781—1957
Effect of jet structure on noise generation by supersonic nozzles. Harold R. Mull. **29**: 778—1957
Jet engine inlet noise studies. John D. Olds. **29**: 778—1957
Near field jet engine noise contours. E. J. Kirchman and A. L. Owen. **29**: 1251—1957
Noise control treatment for a 15-passenger commercial helicopter. Laymon N. Miller, Leo L. Beranek, and Harry Sternfeld. **29**: 1251—1957
Noise levels inside the prototype Caravelle twin-jet airliner during flight. Laymon N. Miller and Leo L. Beranek. **29**: 1252—1957
Printing machinery isolation. Laymon N. Miller and Ira Dyer. **29**: 765—1957
Sonic vibration as exemplified by the RB-66. Dwight C. Kennard, Jr. **29**: 776—1957
Theory of pulse jet noise generation. Peter J. Westervelt and Richard J. McQuillin. **29**: 1252—1957

SUBTITLES
Reduction of transmitted noise. Robert H. Kraichnan. **29**: 79—1957

PATENTS
Baffle muffler silencer. John H. Bailey. **29**: 759—1957
Combination sound converters and spark arresters. Clarence N. Hopkins. **29**: 676—1957
Devaporizing muffler. John A. Langford. **29**: 676—1957
Exhaust muffler. Joseph Reindl. **29**: 1156—1957
Muffled vibrator. James E. Becker. **29**: 1156—1957
Muffler. John H. Bailey. **29**: 1053—1957
Muffler. Josef Heurich and Alexander Leopold Garve. **29**: 761—1957
Muffler. Eddy D. Latulippe. **29**: 675—1957
Muffler. Chester C. Moss. **29**: 540—1957
Muffler. Walter H. Powers. **29**: 760—1957
Muffler and noise screen. Alfred Kimbal. **29**: 676—1957
Muffler construction. Albert J. Dehaus. **29**: 676—1957
Muffler for internal combustion engines. Max D. Gordanier. **29**: 677—1957
Muffler for lawn mower. Cecil E. Chesser. **29**: 761—1957
Muffler, spark arrester, and water trap for internal combustion engines having vertical stacks. Jess C. Higgins. **29**: 759—1957
Muffler unit. Millard J. Ralph. **29**: 761—1957
Muffler with sliding auxiliary tube. Bernard C. Kirby. **29**: 761—1957
Muffler with vibration damping shell. Floyd E. Deremer. **29**: 675—1957
Noise damping muffler. Raymond L. Dills. **29**: 540—1957
Noise reducing system for transformers. William B. Conover and Willard F. M. Gray. **29**: 677—1957
Noise reduction device. Peter A. Argentieri. **29**: 423—1957
Pulsation dampener for gaseous streams. Golden A. Moyer. **29**: 759—1957
Silencer for high-frequency sounds. Richard E. Brown and George M. Walton. **29**: 760—1957
Silencers for fluid systems. Nathan Marcus and George Marcus. **29**: 759—1957
Silencing of sound. Alf Lysholm, Gustav Karl William Boestad, and Hans Robert Nilsson. **29**: 676—1957
Sinuous type muffler. Joseph P. Marx. **29**: 677—1957
Smogless air mufflers. George Jenison. **29**: 760—1957
Vertical muffler for internal combustion engine. Charles I. Keene. **29**: 677—1957
Water muffler. William H. Arnold and Samuel H. Cottrell. **29**: 761—1957
Waterproof muffler for vertical exhausts. Alpha G. Cheairs. **29**: 677—1957

**7.8 Noise Generators. (See also 13.9.)**

PAPERS
Some experiments related to the noise from boundary layers. Harvey H. Hubbard. **29**: 331—1957

LETTERS TO THE EDITOR
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### *13. Underwater Sound*

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